Subject Area   Mathematics   **Grade Level** 1

Mission Statement: It is the mission of the Elba Central School District to actualize the phrase "Elba Equals Educational Excellence for Everyone." We are committed to providing both quality and equity. Every student will have the opportunity to develop to the best of his/her ability.

Elba Standards: In addition to the knowledge and basic skills they need in order to participate in society, graduates of Elba Central School will develop:
1. Empowering skills: decision making, goal setting, creative thinking and problem solving abilities;
2. Communication and social interaction skills;
3. Technological literacy;
4. Total wellness (social, physical, emotional health and self-esteem);
5. The values necessary to participate in society.
As a result of achieving these outcomes, our students will embrace lifelong learning.

New York State Standards:
Standard 3: Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry.

1. Mathematical Reasoning
    Performance Indicators:
    1A. Use models, facts, and relationships to draw conclusions about mathematics and explain their reasoning.
    1B. Use patterns and relationships to analyze mathematical situations
    1C. Justify their answers and solution processes.
    1D. Use logical reasoning to reach simple conclusions.

2. Numbers and Numeration
    Performance Indicators:
    2A. Use whole numbers and fractions to identify locations, quantify groups of objects, and measure distances.
    2B. Use concrete materials to model numbers and number relationships for whole numbers and fractions including decimal fractions.
    2C. Relate counting to grouping and place value.
    2D. Recognize the order of whole numbers and commonly used fractions.
    2E. Demonstrate the concept of ratio through problems related to actual situations.

3. **Operations**
    Performance Indicators:
    3A. Add and subtract whole numbers.
    3B. Develop strategies for selecting the appropriate computational and operational method in problem solving,
    3C. Know single-digit addition and subtraction facts and develop readiness for multiplication and division facts.
    3D. Understand the commutative and associative properties.

4. **Modeling/Multiple Representation**
    Performance Indicators:
    4A. Use concrete materials to model spatial relationships.
    4B. Construct charts and graphs to display and analyze real-world data.
    4C. Use multiple representations (manipulative materials, pictures, diagrams) as tools to explain the operation of every day procedures.
    4D. Use variables such as height, weight, and hand size to predict changes over time.
    4E. Use physical materials, pictures, and diagrams to explain mathematical ideas and processes and to demonstrate geometric concepts.

5. **Measurement**
    Performance Indicators:
    5A. Understand that measurement is approximate never exact.
    5B. Select appropriate standard and nonstandard measurement tools in measurement activities.
    5C. Understand the attributes of area, length, capacity, volume, weight, time, temperature, and money.
    5D. Estimate measure such as length, perimeter, area, and volume, using both standard and nonstandard units.
    5E. Collect and display data.
    5F. Use statistical methods such as graphs, tables, and charts to interpret data.

6. **Uncertainty**
    Performance Indicators:
    6A. Make estimates to compare to actual results of both formal and informal measurement.
    6B. Make estimates to compare to actual results of computations.
    6C. Recognize situations in which only an estimate is required.
    6D. Develop a wide variety of estimation skills and strategies.
    6E. Determine the reasonableness of results.
    6F. Predict experimental probabilities.
    6G. Make predictions, using unbiased random samples.
    6H. Determine probabilities of simple events.

7. **Patterns/Functions**
    Performance Indicators:
    7A. Recognize, describe, extend, and create a wide variety of patterns.
    7B. Represent and describe mathematical relationships.
    7C. Explore and express relationships using variables and open sentences.
    7D. Solve for an unknown using manipulative materials.
    7E. Use a variety of manipulative materials and technologies to explore patterns.
    7F. Interpret graphs.
    7G. Explore and develop relationships among two-and three-dimensional geometric shapes.
    7H. Discover patterns in nature, art, music, and literature.

National Standards:

Number and Operations
Understand numbers, ways of representing numbers, relationships among numbers, and number systems
Understand meanings of operations and how they relate to one another
Compute fluently, and make reasonable estimates

Algebra
Understand patterns, relations, and functions
Represent and analyze mathematical situations and structures using algebraic symbols
Use mathematical models to represent and understand quantitative relationships
Analyze change in various contexts

Geometry
Analyze characteristics and properties of two- and three- dimensional geometric shapes and develop mathematical arguments about geometric relationships
Specify locations and describe spatial relationships using coordinate geometry and other representational systems
Apply transformations and use symmetry to analyze mathematical situations
Use visualization, spatial reasoning, and geometric modeling to solve problems

Measurement

Understand measurable attributes of objects and the units, systems, and processes of measurement

Apply appropriate techniques, tools, and formulas to determine measurements

Data analysis and probability

Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them

Select and use appropriate statistical methods to analyze date

Develop and evaluate inferences and predictions that are based on data

Understand and apply basic concepts of probability

Problem solving

Build new mathematical knowledge through problem solving;

Solve problems that arise in mathematics and in other contexts

Apply and adapt a variety of appropriate strategies to solve problems

Monitor and reflect on the process of mathematical problem solving

Reasoning and proof

Recognize reasoning and proof as fundamental aspects of mathematics;

Make and investigate mathematical conjectures;

Develop and evaluate mathematical arguments and proofs;

Select and use various types of reasoning and methods of proof.

Communication

Organize and consolidate their mathematical thinking through communication;

Communicate their mathematical thinking coherently and clearly to peers, teachers, and others;

Analyze and evaluate the mathematical thinking and strategies of others;

Use the language of mathematics to express mathematical ideas precisely.

Connections

Recognize and use connections among mathematical ideas;

Understand how mathematical ideas interconnect and build on one another to produce a coherent whole;

Recognize and apply mathematics in contexts outside of mathematics.

Representation

Create and use representations to organize, record, and communicate mathematical ideas;

Select, apply, and translate among mathematical representations to solve problems;

Use representations to model and interpret physical, social, and mathematical phenomena.

Performance Indicators: inserted above

Assessment:	Acceptable Performance Level
Daily anecdotal record keeping	Level 2 or 3 according to the performance code, as in report card.
Chapter tests (Math in My World, McGraw-Hill)	Level 2 or 3 according to the performance code, as in report card.
Workbook pages	Level 2 or 3 according to the performance code, as in report card.

Scope: Developmentally organized study of mathematics including; numeration of numbers to 100, addition and subtraction, money, time, graphing, measurement, patterning and problem solving.

Sequence:

1. Numeration and number theory
   - Identifies and writes numbers to 100
   - Sequences numbers 0-99
   - Identifies numbers before, between, and after
   - Determines greater, less than, equals
   - Recognizes and identifies ordinal numbers (1st-10th)
   - Counts by 1's,5's, and 10's to 100
   - recognizes and completes patterns
   - makes reasonable estimates

2. Adding and subtracting whole numbers to 18
   - Demonstrates the ability to solve one step problems after determining whether to add or subtract
   - construct fact families for addition and subtraction
   - demonstrates use of number line
   - utilizes fact strategies (i.e. count on)
   - draws pictures and uses manipulatives to represent problems
   - explores 2-digit addition and subtraction

3. Money
   - identifies coins: penny, nickel, dime, quarter
   - interprets the value of coins: penny, nickel, dime

4. Time
   - tells time to the hour and half hour

5. Fractions
   - recognizes fractional parts: 1/2, 1/3, 1/4

6. Place Value
   - identifies the place value of tens and ones

7. Graphing
   - Organizes, displays, and interprets simple real world information using charts, bar and picto-graphs, and tallies

8. Geometry
   - identifies and reproduces simple geometric shapes

9. Measurement
   - interprets and gathers information from calendars
   - measures length: inch, foot, centimeter, and non-standard units
   - measures weight: pounds and non-standard units
   - describes temperature in relationship to seasons

10. Probability
   - predicts outcomes of object combinations

Methodology:

- direct instruction in large and small groups
- practice of skills and concepts with the use of manipulatives and games
- practice of skills and concepts through the use of related work sheets
- review of skills and concepts through the use of computer programs
- reading literature related to math skills and concepts